Claims

[c1] A method of fabricating a dynamo-electric machine rotor, said method comprising:
forming a plurality of laminations, such that a plurality of openings extend through the laminations between an outer peripheral edge and an inner peripheral edge of the laminations, and such that the openings are arcuately spaced about the lamination, wherein each opening has an edge having a tongue including a fixed end and a distal end, wherein each tongue extends each opening;
stacking the laminations to form a core wherein adjacent openings are substantially aligned to form a slot in the core; and
filling each core slot with rotor bar material.

[c2] A method in accordance with Claim 1 wherein forming a plurality of laminations further comprises forming the plurality of openings with a substantially trapezoidal-shape.

[c3] A method in accordance with Claim 1 wherein forming a plurality of laminations further comprises forming the plurality of openings such that the tongue extends perpendicularly to a radial axis of the opening.

[c4] A method in accordance with Claim 1 wherein forming a plurality of laminations further comprises forming the plurality of openings such that the openings are each sized to receive a conductive rotor bar.

[c5] A method in accordance with Claim 1 wherein forming a plurality of laminations further comprises forming the plurality of openings such that the tongue is resiliently flexible in a first direction toward the outer peripheral edge and in a second direction toward the inner peripheral edge.

[c6] A method in accordance with Claim 1 wherein forming a plurality of laminations further comprises forming the plurality of openings such that the tongue is proximate the inner peripheral edge.

[c7] A method in accordance with Claim 1 wherein forming a plurality of laminations further comprises forming the plurality of openings such that the openings each

include a first edge including a tongue with a fixed end and a distal end, the first edge tongue extends from the first edge into the opening, the tongue disposed proximate to the inner peripheral edge and a second edge including a tongue with a fixed end and a distal end, the second edge tongue extends from the second edge into the opening, the tongue disposed proximate to said inner peripheral edge.

[c8] A method in accordance with Claim 7 wherein forming a plurality of laminations further comprises forming the plurality of openings such that the first edge tongue extends into the opening a first distance, the second edge tongue extends into the opening a second distance, the first distance being substantially equal to the second distance.

[c9] A method in accordance with Claim 8 wherein forming a plurality of laminations further comprises forming the plurality of openings such that the first edge tongue distal end is proximate the second edge tongue distal end.

[c10] A method in accordance with Claim 1 wherein forming a plurality of laminations further comprises forming the plurality of openings such that the tongue distal end includes a raised pad that extends toward the outer peripheral edge.

[c11] A method in accordance with Claim 1 wherein forming a plurality of laminations further comprises forming the plurality of openings such that the first edge further includes a semi-circular first notch that is adjacent the tongue fixed end and a semi-circular second notch that is adjacent the tongue fixed end opposite the first notch.

[c12] A method in accordance with Claim 1 wherein forming a plurality of laminations further comprises forming a central aperture through each lamination for receiving a rotor shaft.

[c13] A method in accordance with Claim 12 wherein forming a central aperture through each lamination further comprises forming a keyway portion to the central aperture.

[c14] A method in accordance with Claim 1 wherein forming a plurality of laminations

further comprises forming the plurality of openings such that each opening includes a third edge parallel to and proximate the outer peripheral edge, the third edge including an opening to the outer peripheral edge.

[c15] A method in accordance with Claim 1 wherein filling the core slots further comprises inserting each rotor bar with a friction fit between the rotor bar material and at least one lamination.

[c16] A method in accordance with Claim 1 wherein filling the core slots further comprises inserting each rotor bar flexing at least one tongue toward the inner peripheral edge.

[c17] A lamination configuration for use in a rotor core of a dynamo-electric machine, the lamination configuration comprising:
a unitary body fabricated from a ferromagnetic material, said body comprising:
an outer peripheral edge;
an inner peripheral edge spaced radially from said outer peripheral edge; and
a plurality of openings that extend through said body between said outer peripheral edge and said inner peripheral edge of the body such that said openings are arcuately spaced about said body, said openings each comprising an edge, said edge comprising a tongue, said tongue comprising a fixed end and a distal end, said tongue extending from said edge into said opening.

[c18] A lamination in accordance with Claim 17 wherein said openings are each substantially trapezoidal-shaped.

[c19] A lamination in accordance with Claim 17 wherein said tongue extends perpendicularly to a radial axis of said opening.

[c20] A lamination in accordance with Claim 17 wherein said openings are each configured to receive a conductive rotor bar.

[c21] A lamination in accordance with Claim 17 wherein said tongue is resiliently flexible in a first direction toward said outer peripheral edge and in a second direction toward said inner peripheral edge.

[c22] A lamination in accordance with Claim 17 wherein said tongue is disposed

proximate to said inner peripheral edge.

[c23] A lamination in accordance with Claim 17 wherein said first edge comprises a tongue comprising a fixed end and a distal end, said first edge tongue extends from said first edge into said opening, said tongue disposed proximate to said inner peripheral edge and said second edge comprises a tongue comprising a fixed end and a distal end, said second edge tongue extends from said second edge into said opening, said tongue disposed proximate to said inner peripheral edge.

[c24] A lamination in accordance with Claim 23 wherein said first edge tongue extends into said opening a first distance, said second edge tongue extends into said opening a second distance, said first distance being substantially equal to said second distance.

[c25] A lamination in accordance with Claim 24 wherein said first edge tongue distal end is proximate said second edge tongue distal end.

[c26] A lamination in accordance with Claim 17 wherein said tongue distal end comprises a raised pad that extends toward said outer peripheral edge.

[c27] A lamination in accordance with Claim 17 wherein said first edge further comprises a semi-circular first notch that is adjacent said tongue fixed end and a semi-circular second notch that is adjacent said tongue fixed end opposite said first notch.

[c28] A lamination in accordance with Claim 17 wherein further comprising a central aperture that extends therethrough for receiving a rotor shaft.

[c29] A lamination in accordance with Claim 28 wherein said central aperture comprises a key way.

[c30] A lamination in accordance with Claim 17 wherein said openings each also having a third edge parallel and proximate to said outer peripheral edge, said third edge comprising an opening to said outer peripheral edge.

[c31] A rotor configuration for use in a dynamo-electric machine, said rotor

comprising:

a rotor core comprising a stack of laminations comprising a peripheral portion interposed between a first end face and a second opposing end face, said laminations comprising a plurality of openings each comprising an edge, said edge comprising a tongue comprising a fixed end and a distal end, said tongue extending from said edge into said opening, said laminations stacked to form a core, said openings substantially aligned to form a slot in said core, said slot extending from said first end face to said second end face; and

a plurality of conductive rotor bars comprising a first end and a second end, said bars mounted in said rotor slots wherein said slot tongue distal ends are resiliently displaced away from said bars biasing said bars in a direction toward said peripheral portion.

[c32] A rotor in accordance with Claim 31 wherein said laminations are stacked such that said core slots are skewed.

[c33] A rotor in accordance with Claim 31 wherein said openings are substantially trapezoidal-shaped.

[c34] A rotor in accordance with Claim 31 wherein said tongue extends perpendicularly to a radial axis of said opening.

[c35] A rotor in accordance with Claim 31 wherein said openings are each sized to receive a conductive rotor bar.

[c36] A rotor in accordance with Claim 31 wherein said tongue is resiliently flexible in a first direction toward said outer peripheral edge and in a second direction toward said inner peripheral edge.

[c37] A rotor in accordance with Claim 31 wherein said tongue disposed proximate to said inner peripheral edge.

[c38] A rotor in accordance with Claim 31 wherein said first edge comprises a tongue comprising a fixed end and a distal end, said first edge tongue extends from said first edge into said opening, said tongue disposed proximate to said inner peripheral edge and said second edge comprises a tongue comprising a fixed

end and a distal end, said second edge tongue extends from said second edge into said opening, said tongue disposed proximate to said inner peripheral edge.

[c39] A rotor in accordance with Claim 38 wherein said first edge tongue extends into said opening a first distance, said second edge tongue extends into said opening a second distance, said first distance being substantially equal to said second distance.

[c40] 40. A rotor in accordance with Claim 39 wherein said first edge tongue distal end is proximate said second edge tongue distal end.

[c41] A rotor in accordance with Claim 31 wherein said tongue distal end comprises a raised pad extending toward said outer peripheral edge.

[c42] A rotor in accordance with Claim 31 wherein said first edge further comprises a semi-circular first notch adjacent said tongue fixed end and a semi-circular second notch adjacent said tongue fixed end opposite said first notch.

[c43] A rotor in accordance with Claim 31 wherein further comprising a central aperture therethrough for receiving a rotor shaft.

[c44] A rotor in accordance with Claim 43 wherein said central aperture comprises a key way.

[c45] A rotor in accordance with Claim 31 wherein said openings each also having a third edge parallel and proximate to said outer peripheral edge, said third edge comprising an opening to said outer peripheral edge.